

**APPARATUS AND METHOD FOR INTEGRATING A PHYSICAL
MOLECULAR MODEL WITH A COMPUTER-BASED VISUALIZATION
AND SIMULATION MODEL**

ABSTRACT

Modeling systems are enhanced by combining physical and virtual modeling techniques to create a hybrid modeling system. Manipulation of physical models results in updated real-time physical characteristics being provided to a virtual model. User manipulation of virtual model characteristics can also be provided and implemented on the physical model using actuators and control devices. The invention also enables multiple users to simultaneously construct and manipulate different portions of a physical model, e.g., of an atom or a molecule, and to have the results of these manipulations provided to a computer system for computational analysis. The results of such analyses can be electronically returned to the physical model, e.g., wirelessly.

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